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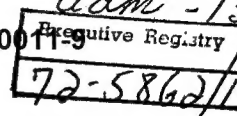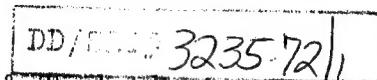72-5862/1

14 NOV 1972

DD/ 3235-72/1

MEMORANDUM FOR: Deputy Director for Science & Technology

SUBJECT            : IG Survey of the Office of Research and
                     Development

1. Forwarded herewith is a copy of the Inspector General's
Survey of the Office of Research and Development, which was initiated
at your suggestion. I am fully aware that a number of the points
covered in this report confirm matters of which you were fully aware
and on which a number of procedural or organizational changes have
already been made. I do, however, invite your comment on this Sur-
vey, with particular attention to the recommendations made by the
Inspector General. I would suggest that these comments be received
by 15 January 1973.

2. You might also consider some of the following points which
occurred to me:

a. Recommendation No. 1. I express my own interest in
seeing as much consolidation of these reporting systems as
possible. I would particularly hope that a single input action
might suffice to provide the basic information to satisfy the
needs of various offices feeding off a single information system.

b. Recommendation No. 3. The IG makes a useful sug-
gestion that DD/S&T take the initiative in exploring the possi-
bility of rotation of technical officers. May I volunteer the
services of the Office of Personnel to provide staff support for
any such effort and my own support with respect to any other
Deputy Directors you may wish to approach.

c. Recommendation No. 5. In part, of course, the new
R&D Board and its panels should assist in the process of dis-
semination recommended here. DD/S&T's established R&D

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25X1

- 2 -

publication produced by [                    ] also contributes.
These might be supplemented by dissemination of R&D devel-
opments which are not CIA projects but which would be of
possible interest to different technical elements of the Agency.

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d. Recommendations Nos. 6 and 7. Our recent discussion
of a possible policy statement with respect to contracting offi-
cers should solve a great part of the problem in these two
recommendations.

e. Page 58. I note the IG's confidence in the DD/S&T and
ADD/S&T with respect to possible conflict-of-interest cases.
I share that confidence. I am sure that the DD/S&T will take
steps to ensure that all cases of possible conflict of interest or
even misunderstanding as to possible conflict of interest are
raised with him as a part of the normal management process
of the Directorate, rather than being handled by staff levels
below him.

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3. One of the most interesting recommendations appears at the
end, pages 85 and 86. The IG suggests the possibility of the establish-
ment of uniform standards and mechanisms for the management of
R&D activities and for the evaluation of the results of the Agency's
R&D efforts. I confess some doubt as to the possibility of establish-
ing uniform standards and mechanisms for managing all Agency R&D
activities, but I do find most attractive the possibility of some uni-
form system of evaluation of the results of our R&D efforts throughout
the Agency. This, of course, relates to my interest in systematic
evaluation of the Agency's activities in all fields, not just R&D. I am
fully aware of the complications involved in trying to evaluate the suc-
cess of R&D, but nonetheless I think this would be a very useful goal
to set so that we can begin to measure the success of our R&D activi-
ties. This in no way suggests any change in our desire to focus the
R&D Board on the substance of R&D and the Agency's needs. Rather,
I suggest that the R&D Board not get involved in the allocation or
measurement of the effectiveness of financial expenditures but that a
separate system be developed in the program process for this purpose.

W. E. Colby
Executive Director-Comptroller

cc: IG

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S E C R E T

INSPECTOR GENERAL'S SURVEY

OF THE

OFFICE OF RESEARCH AND DEVELOPMENT

OCTOBER 1972

S E C R E T

S E C R E T

## TABLE OF CONTENTS

i

S E C R E T

S E C R E T

## RECOMMENDATIONS

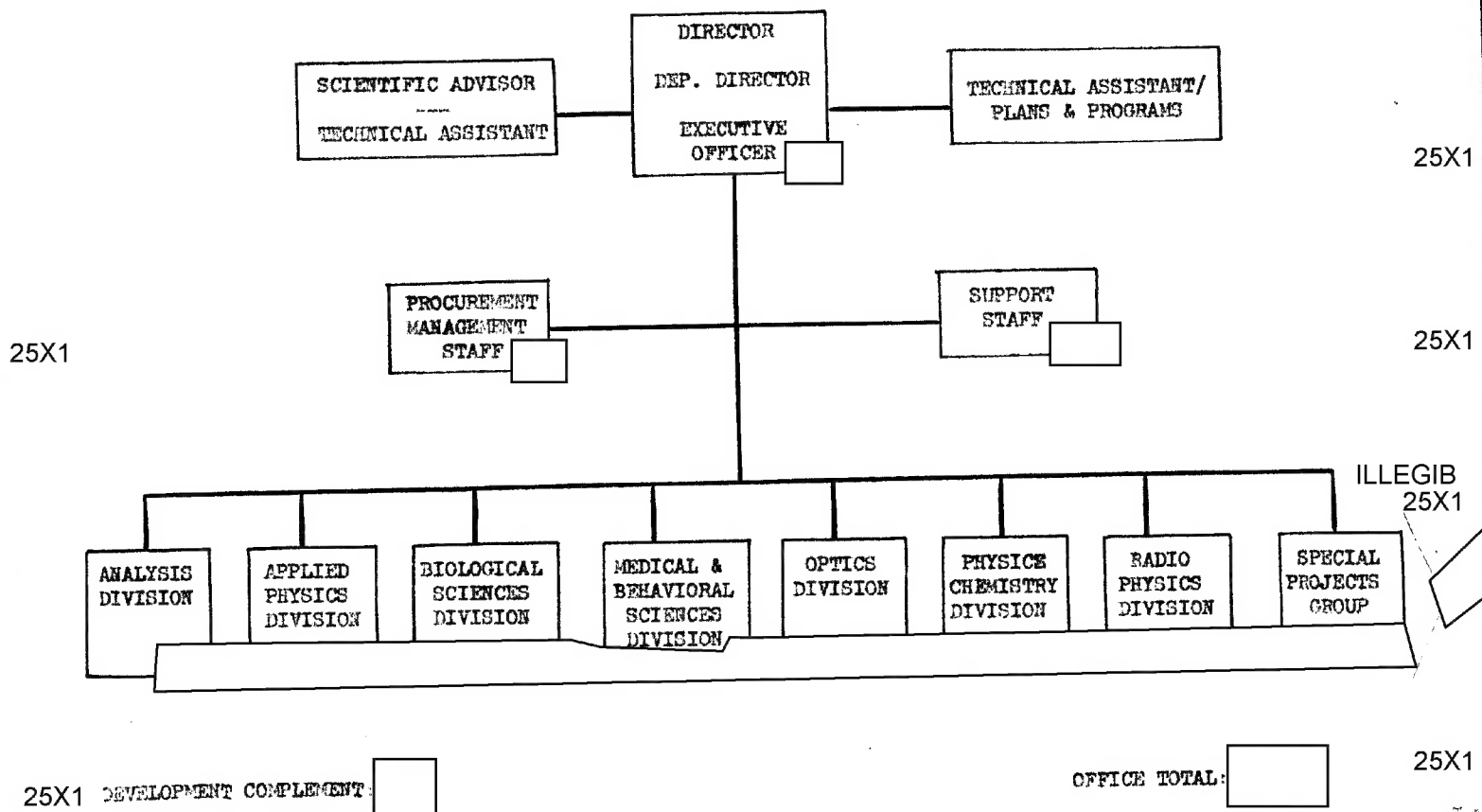S E C R E T

S E C R E T

## INTRODUCTION

1. We felt it necessary to limit the scope of this survey because of the highly technical nature of most of the work of the Office of Research and Development (ORD). We made no attempt to analyze or critique the scientific worth of ORD's programs nor to make any specific evaluation of the contributions those programs have made to the intelligence process, because to do so would have been beyond our competence. This report of survey thus is confined primarily to such matters as the clarity of the ORD mission; the adequacy of organizational structure; the manner in which R&D activities are planned, managed, and evaluated; and the efficiency of ORD's operations.

2. The major portion of the information-gathering phase of the survey was completed during the period from April through June 1972. Consequently, the situations that are described and the references that are made to the Director of ORD relate to the Director who was on duty during that period and not to the present Director who was assigned on 3 July 1972.

- 1 -

S E C R E T

SECRET

OFFICE OF RESEARCH AND DEVELOPMENT

| | DIRECTOR | |
|---|---|---|
| SCIENTIFIC ADVISOR | DEP. DIRECTOR | TECHNICAL ASSISTANT/ |
| TECHNICAL ASSISTANT | EXECUTIVE OFFICER | PLANS & PROGRAMS |

25X1

| PROCUREMENT MANAGEMENT STAFF | SUPPORT STAFF |
|---|---|

25X1                                                                          25X1

ILLEGIB
25X1

| ANALYSIS DIVISION | APPLIED PHYSICS DIVISION | BIOLOGICAL SCIENCES DIVISION | MEDICAL & BEHAVIORAL SCIENCES DIVISION | OPTICS DIVISION | PHYSICS CHEMISTRY DIVISION | RADIO PHYSICS DIVISION | SPECIAL PROJECTS GROUP |
|---|---|---|---|---|---|---|---|

25X1  DEVELOPMENT COMPLEMENT:                                    OFFICE TOTAL:        25X1

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## ORGANIZATION

1. The Office of Research and Development (ORD) is composed of the Office of the Director, two staffs, seven operating divisions, and one special projects group. It had [        ] on duty at the time of our survey. Its ceiling as of 31 July 1972 was [        ] The annual operating budget is currently running at approximately [        ] A chart showing the structural breakdown of the office and the distribution of personnel by component appears on the facing page.

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25X1

### Office of the Director

2. The staff of the Office of the Director, ORD, consists of the Director himself, a Deputy Director, an Executive Officer, a Technical Assistant for Plans and Programs, a Scientific Advisor, a Technical Assistant to the Scientific Advisor, and three secretaries. The Deputy Director had been on sick leave since January and, as of the last report we had, the prospect of his returning to full duty was not promising. The Scientific Advisor was serving as Acting Deputy Director in addition to his other duties.

- 2 -

SECRET

SECRET

3. Individual responsibilities of those assigned to the Office
of the Director, with few exceptions, are not clearly delineated.
The work of the Office is apportioned among them largely on the
basis of the individual's own background. The Director (a physicist)
and the Scientific Advisor (a chemist) concern themselves primarily
with the work of the divisions dealing with the physical sciences.
The Deputy Director (a doctor of medicine), before his illness,
concentrated on the work of the two divisions dealing with the life
sciences. The Analysis Division, which is engaged primarily in
exploration of computer applications, has no "steward" in the front
office, although the Technical Assistant for Plans and Programs was
formerly designated as the Technical Assistant for automatic data
processing. The Executive Officer monitors administration, support,
and internal liaison. The Technical Assistant to the Scientific Advisor
has been given special assignments, but he has not been assigned any
specific duties of a regular and continuing nature.

4. The Technical Assistant for Plans and Programs has an
assortment of jobs, many of which have little or nothing to do with
plans and programs. It is our understanding that his present responsi-
bilities grew out of and are in addition to the functions originally

- 3 -

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SECRET

assigned to him in the field of automatic data processing. He does prepare the office program call, the annual budget proposals, and assembles the information needed for the quarterly project review meetings with the DD/S&T. He spends part of his time writing technical studies and reviewing scientific journals and Agency publications for leads that may stimulate technical innovation in the various divisions. He has prepared a large number of technical papers, some of which have been published by professional societies. We tried, without success, to discover of what value these papers may have been to ORD in carrying out its responsibilities. He has also participated extensively in a variety of internal and external training courses, has devised scientific training courses for the Agency, and serves as an instructor in some of them. He appeared to us to be an aggressive and hard-working individual with many irons in the fire. The results of his diverse activities are no doubt of some benefit to the Agency, but we fear that the miscellaneous tasks in which he is engaged interfere with the proper fulfillment of his primary role as plans and programs officer.

5. The Scientific Adviser is used by many ORD officers as a sounding board for ideas, as a gauge of the political climate, and

- 4 -

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as a source of advice on Agency procedures. The Director of ORD
uses him in much the same way. He also is often the office briefer
and serves as office representative on several boards and committees.
He, as well as others in the front office, reviews the Blue Books
(project proposals). Although the reviewers themselves no doubt
think otherwise, we have the distinct impression that these reviews
are quite superficial, going little beyond ascertaining that the required
papers are in place and are reasonably well written.

6. With the exception of the Technical Assistant to the Scientific
Advisor, who has no regular work, everyone in the Office of the
Director appeared to be fully occupied, but the arrangements for
overseeing the work of ORD seemed to us to be very loose and
unstructured. The staff takes care of the usual routines of pushing
papers through the front office, of responding to problems as they
arise, and of attending meetings. However, many of the tasks that
occupy them are self-generated as a consequence of a personal
interest in a particular subject. Staff members commented that they
had occasionally made studies of or recommendations on ways of
improving the work processes of the office. A few of these had

- 5 -

SECRET

SECRET

evoked comment from the Director, but none of the staff members could recall an instance of action having been taken on any of them.

7. The atmosphere is casual and easy-going, and all of the staff members appear to have satisfactory personal relationships with the Director, but they receive little guidance from him and see little visible evidence of his interest in their work. One staff officer remarked that he never knew if he was doing well in his job or not, because the Director never commented on his work--one way or the other.

Support Staff

8. The position of Administrative Officer was established in ORD in 1963, and a technical officer from within ORD was assigned to the position. Various duties accrued to him, and gradually a support staff of a sort evolved but not along conventional lines. The Administrative Officer interested himself in or was directed to engage in a variety of activities not normally delegated to a support officer, and not enough attention was paid to the specialized administrative and routine housekeeping tasks for which a support staff is normally responsible. The Security Officer, the Finance Officer, and the Librarian were not under the Administrative Officer but reported directly to the Executive Officer.

- 6 -

SECRET

9.    That arrangement remained in effect until 3 April 1972 when the present Support Staff was established.    A professional support officer was named to head it, and the former Administrative Officer was reassigned to another Agency component.    The present 25X1 Support Staff [          ] is organized along conventional lines: finance, logistics, security, registry, library, and personnel.    In the ensuing months a number of actions have been initiated designed to raise the standards of support service and administration in ORD to the level that prevails generally in other parts of the Agency.

### Housekeeping

10.    The space occupied by ORD on the 5th, 6th, 7th, and 12th floors of the Ames Center Building is well laid out and is adequate for ORD's needs.    We noted at the beginning of our survey, however, that poor housekeeping practices prevailed in many of the offices. Offices were cluttered with unneeded administrative equipment and with disorderly and untidy accumulations of books, pamphlets, and other documents.    Prototype and pre-production pieces of equipment were stored in some offices, contributing to the clutter and in some instances representing possible safety hazards.    The work area

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occupied by the Registry was overflowing with boxes of documents
and with equipment haphazardly stored and seemingly forgotten. ORD
initiated a clean-up campaign while our survey was in progress,
which resulted in a noticeable improvement in the appearance of
many of the offices.

Property Management

11. ORD is responsible for property valued at approximately

25X1 _____ consisting of (a) administrative or operating property

for which it is accountable on consolidated memorandum receipt,
(b) government-furnished equipment provided to contractors, and
(c) prototype or pre-production items of equipment received from
contractors. An audit report for the period ending 30 September
1971 called attention to certain deficiencies in ORD's management
of its property: discrepancies in the records on property held
under consolidated memorandum receipt, excess and/or unserviceable
property on hand, and lack of central control over prototype and pre-
production items received from contractors. ORD has taken steps
to correct these deficiencies, but continued monitoring and enforced
discipline by ORD management will be required to ensure that they
stay corrected.

- 8 -

SECRET

SECRET

## Security

12.  ORD receives some 2,000 documents each month of which
about 500 are TOP SECRET codeword.  Large numbers of contractors
visit ORD's offices in Ames Building for consultations or briefings,
and ORD currently is using some [          ] consultants on an inter-          25X1
mittent basis.  Arrangements with some contractors allow for their
use of ORD computers, and some contractor representatives have
no-escort badges.  Contractual arrangements with industrial concerns
and with educational institutions require constant appraisal and re-
appraisal to ensure that proper security standards are maintained.
ORD has had significant problems in the past in connection with the
control of ID cards and visitors' no-escort badges, compliance with
courier and mailing instructions, and clearance and control of visitors.
The present Security Officer has recently made studies and has issued
notices designed to improve ORD's security posture and practices.
This is a good start, but what is needed additionally is strong support
for the security program by the Director of ORD and by his division
chiefs.

- 9 -

SECRET

SECRET

## Contract Information Systems

13. Most of ORD's work relates to contracts awarded to industrial concerns and to educational institutions. As a consequence, much of its reporting and record-keeping relates to such things as the status of funds available for contracting, the pre-award work required prior to entering into contracts, contractor progress reports, and project officer inspection reports. At the time of our survey ORD was involved in the care and feeding of four separate contract information systems. Two of them, the DD/S&T Contract Information System (CIS) and the Office of Logistics system (CONIF), were designed primarily to serve certain Agency-wide needs for basic information regarding contracts and the management of them. The other two are internal ORD systems. One is known as the ORD Contract Management System (CMS), which is run on ORD computers using the ADEPT software package. The other, known as CHEQUE, is a manual system based on a Kardex card file. The two ORD systems were created to satisfy needs for contract information that were felt not to be met by the two Agency systems.

14. We believe there is an urgent need to take a close look at the manifold contract management systems now in use in ORD. The

- 10 -

SECRET

duplication of effort and the paperwork involved in supporting these four systems need careful examination, as does the use of--or the failure to use--the reports derived from them. Each of these systems does something that none of the others will do, but essentially similar data is input to each of the four systems. The information contained in the reports derived from any one of these systems is not synchronized with information derived from the other systems, and in many instances the information is not fully usable for management purposes without laborious manual reconciliation and remanipulation.

15. We realize that this is a complex subject on which widely differing views are held and that studies are now under way concerning possible improvements in the CIS and CONIF systems. Presumably these studies will give attention to refinements needed to provide information required for contract management purposes at the levels of the office, division, project officer, and contracting officer.

16. Meanwhile, we believe that ORD must begin preparing to adjust itself to abandoning its internal CMS machine-operated system. The former Administrative Officer who programmed and maintained the system has left, and there is no one in ORD available to continue the work. Also, the DD/S&T has decided that the ORD computer is to

- 11 -

SECRET

be removed, which means that no machinery will remain in ORD

on which to run the system. Moreover, this system is designed

specifically for operation using the ADEPT software package and

cannot be run under the software system commonly used by the

Office of Computer Services. And, finally, the ORD CMS system

and the DD/S&T CIS system are to a very large degree duplicatory:

two systems are not needed where one could be made to serve.

### Recommendation No. 1

That the DD/S&T have a review made of the Contract
Information System to determine if its content can be
expanded or otherwise revised so as to make unnecessary
the continuation of ORD's Contract Management System.

### Library

17. The ORD library contains some 950 technical books and

standard reference works; an assortment of studies by various

learned societies, private companies, universities, DoD, and other

Government agencies; and various Agency publications. The library

also now keeps one copy of each final ORD report, although these

items have not been catalogued and the collection is far from complete.

The library subscribes to 68 technical periodicals and receives semi-

monthly listings from two Government clearing houses: the Defense

- 12 -

SECRET

SECRET

Documentation Center and the National Technical Information Service. These listings contain abstracts of reports of current R&D work done by the Government or under contract to the Government. Some of these documents are classified; some are not. In addition, "Topical Announcements" of unclassified documents in specialized fields are received from the National Technical Information Service and are routed to appropriate divisions of ORD for review.

18. The librarian catalogues the holdings, monitors checkouts of library materials, and responds to requests for book or document searches in the ORD library or for the relay of requests for other searches by the CIA central library. Some ORD project officers use the library and library search facilities quite extensively; some use them infrequently or not at all. Books checked out to individuals often are held for long periods of time, and some ORD officers have ignored the librarian's requests for their return. Thirty-one books were reported as lost or unaccounted for at the time of our survey. There is a need for senior ORD management to take a hand in enforcing discipline in the use of its library.

19. We note that there are two other libraries in Ames Building: one maintained by the Office of Communications and another by the

- 13 -

SECRET

SECRET

Office of Logistics.  We question whether there is need for three

separate libraries in one building--each with its own unique cataloguing

and indexing system--occupying in all five rooms in the building and

25X1    requiring the services of [          ] to operate them.  When we

asked about the feasibility of merging them and operating the combined

facility as a branch of the main library, we were told that this had

been considered in the past but that the idea was abandoned in favor

of keeping them separate.  It was felt then that a merger was not

practical in view of the differing needs of the three offices and of the

complications that would attend trying to manage a combined facility

through coordination among three Directorates.  We are not convinced

that these are good enough reasons for maintaining three separate

libraries if combining them would result in savings, especially of

personnel.  We suggest that additional study be given the matter.

### Recommendation No. 2

That the DD/S&T take the initiative in exploring with
the DD/S and the DD/I the feasibility of combining the
three libraries in Ames Center Building and operating them
as a branch of the main library.

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SECRET

## Personnel Management

20.   The Support Staff provides certain services of common concern in the area of personnel administration, but personnel management is handled primarily at the division level.  ORD has a Career Service Panel that was established in February 1967.  It confines itself to matters affecting the careers of professional employees.  A special panel for career development of secretarial, clerical, and administrative personnel was established in April 1971. It concerns itself with career matters affecting ORD's clerical employees and those support and administrative personnel who do not belong to the DD/S&T career service.  The criteria used in the past by the Career Service Panel in ranking ORD professional employees were ill-defined and inconsistently applied.  The Panel recognized this, and improved ranking criteria have been devised. The new criteria had not yet been applied at the time of our survey, but a new competitive ranking using them was about to be undertaken.

21.   The minutes of the Career Service Panel meetings reveal that the subject of rotation has been discussed repeatedly, but little has come of this talk.  Two officers from ORD's Analysis Division are assigned to the Intelligence Directorate to work on computer

- 15 -

SECRET

applications. OMS has detailed a psychologist from the Psychological Services Staff to work in ORD to improve understanding between the two offices. An OSI specialist in BW/CW is working in ORD. These attempts at cross-fertilization appear to have been of appreciable benefit, but it is a minimal effort. We believe that an effort should be made to expand it. The reasons are many. ORD's project officers are very much isolated from the rest of the Agency and have little familiarity with the work of the offices whose missions they are trying to support. Likewise, few outside of ORD have any real understanding of ORD's capabilities or of its approaches to R&D. Rotation would also help to relieve the parochialisms and the antagonisms that now exist and almost surely would broaden and enrich the talents of the officers concerned.

22. We are aware that recent efforts to encourage inter-Directorate transfers came to nought, but we wonder if an effort confined to the technical field might not have a somewhat better chance of success. Within the last four years we have surveyed six of the Agency components with major R&D responsibilities. Each of the offices has a few technical officers working in very narrow specialities, but, for the most part, all of the technical

SECRET

officers are doing essentially the same sorts of things in basically

the same ways. The work of an electronics engineer in ORD, for

example, differs little from that of an electronics engineer in TSD,

OSP, OEL, or Commo. We believe it would be feasible and beneficial

to encourage movement of technical officers among these technical

components. Whether this is accomplished by scheduled rotations

on a tour basis, by two-way exchanges, by unilateral assignments

from one component to another, or by temporary details matters

little--as long as the exchanges are made with the deliberate intent

of benefiting both the individual and the Agency.

### Recommendation No. 3

That the DD/S&T take the initiative in exploring with
the other Deputy Directors the feasibility of an expansion
of rotation of technical officers among the various Agency
technical offices.

23. ORD has been most generous in sponsoring training for

its employees. About five percent of its work force was in a training

status during FY 1971, and 4.8 percent of man-hours spent in a duty

status was devoted to training. ORD employees are given wide

latitude in choosing the courses they wish to attend. They have

participated in both internal and external courses devoted to both

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technical and managerial subjects. While we think it proper that ORD should sponsor a variety of training for its employees, it has been too lax in acquiescing to requests from employees for training that is of interest to the individual and perhaps of personal benefit to him but not to the Agency. There is need for a more careful review of training requests in order better to relate the potential benefits to the needs of the Agency. The new Chief of Support for ORD has taken recent steps to sharpen the review of training requests. This should place the Director of ORD in a better position to judge the worth of the proposed training before he approves it.

24. We received only one formal complaint on personnel matters from those we interviewed. That complaint alleged personal misconduct by certain named employees. Since there were distinct security implications in the allegation, we referred the matter to the Director of Security for investigation. We did not pursue the matter further and take note of it here only for the record.

25. On the whole, we heard remarkably few adverse comments about personnel matters of a type that usually are the subject of criticism; for example, rate of promotion, working conditions,

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fitness reports, and unfair treatment by supervisors. There were
no complaints about uninteresting or unchallenging work; on the
contrary, most of those with whom we spoke liked their work and
were enthusiastic about it. Most of the criticisms that were made
to us arose from a deeply felt concern about matters of major import:
permissive and inefficient ORD management, lack of clear policy
guidance, uncertain delegations of R&D responsibilities, and inter-
and intra-office rivalries and disputes. We discuss these subjects
in detail in later sections of the report.

Procurement Management Staff

26. The Procurement Management Staff was established in
February 1969 and was given responsibility for reviewing, negotiating,
and executing ORD's contracts with its suppliers. The Staff consists
of a chief, two contract negotiators assigned from the Office of
Logistics, an auditor assigned from the Office of Finance, an
industrial security officer assigned from the Office of Security, and

25X1 a clerical staff of [        ] The auditor reviews the accounting and
cost systems and the financial reliability of the contractor. The
security officer examines personnel and physical security. The
negotiators review the business and legal aspects of contract

- 19 -

SECRET

SECRET

proposals and work out the technical details with the project officer
with whom they jointly negotiate the contract.

27.  Although the Procurement Management Staff met with
some hostility within ORD when it was first established, the
relationships between the Staff and the division chiefs and project
officers are now good.  The team approach has worked well in
practice and has resulted in noticeable improvement in ORD's con-
tracting practices.

28.  The Procurement Management Staff is responsible for
only about two-thirds of ORD's contracts.  The other one-third
are negotiated and administered by the Office of Logistics[          ]       25X1

25X1  [                              ] The Chief of the Procurement Manage-
ment Staff acts in an advisory capacity to the Director of ORD on
some aspects of these contracts and coordinates the activities of his
own staff with those of [                              ] The       25X1
separation of the two staffs poses some awkward problems of
communication, record keeping, and reporting.

Physics-Chemistry Division

29.  The Physics-Chemistry Division, which was formed in
1964, initially focused its efforts on the nuclear area but did some

- 20 -

SECRET

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work on power, materials, and electro-mechanical systems.  Over

the years,  the scope of its program expanded, and the emphasis

changed.  It now is engaged in a broad program of exploiting science

and technology to enhance intelligence collection capabilities. 25X1

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30.  The division consists of the chief,　　　technical officers,

25X1　and　　　ecretaries.  The division administers　　　contracts　25X1

and had an FY-72 budget allocation of　　　　　　　　　25X1

During the period from 1964 through 1971 the Physics-Chemistry

Division completed 13 R&D projects that were identified by ORD as

being technically successful.  Seven of the 13 projects became

operational.  The division chief does not believe in carrying any

project beyond the prototype stage.  It is then turned over to the

operational element for development of an operating capability.

Radio Physics Division

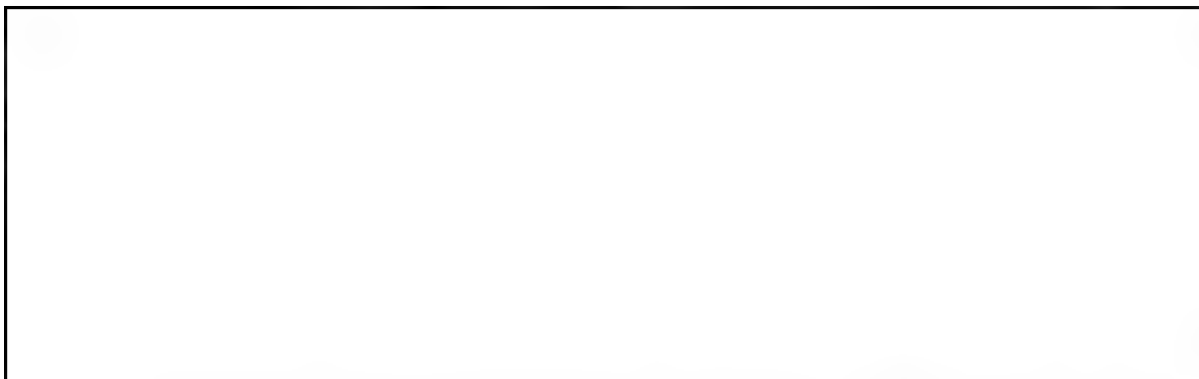31.  The Radio Physics Division was established in February

1963　　　　　　　　　　　　　　　　　25X1

- 21 -

SECRET

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32. The division consists of the chief, [____] technical officers, and [__] secretaries. Its budget allocation for FY-72 was approximately [_____] It currently administers [_____] contracts. During the period from 1964 through 1971 the Radio Physics Division completed 15 R&D projects that ORD characterized as being technically successful. Five of the 15 projects became operational.

Applied Physics Division

33. Work in the fields of audio surveillance and audio counter-measures was begun in the Radio Physics Division in 1963. The division was split in February 1965 with the audio-related work and the people associated with It forming a new division, Audio Physics. The name was changed to Applied Physics Division in the fall of 1966.

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34.   The division consists of the chief, [    ] technical officers,
and [    ] secretaries.  Its budget allocation for FY-72 was [          ]
[                        ] During the period 1965-71, the division completed
44 R&D projects that ORD categorized as being technically successful.
Nineteen of the 44 projects became operational.

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Optics Division

35.   The Optics Division was established in January 1963.
Initially, it directed its efforts to optical collection devices, [          ]

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36.   The division consists of a chief, [    ] technical officers,
and [    ] secretaries.  Its budget allocation for FY-72 was [          ]
[          ] The division is currently administering [          ]
contracts.   Fourteen of the projects that Optics Division completed
during the period 1964-71 were classified by ORD as being technically
successful.   Five of the 14 were put to operational use within the
Agency, and another three were used by the Department of Defense.

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- 23 -

S E C R E T

SECRET

Analysis Division

37.   The Analysis Division was formed in 1964 and was given responsibility for research and development of information handling devices, of techniques and systems at or near the edge of the state of the art, and of developing computer technology that could not be tested in an operating environment.   Its work has evolved over the years to include such things as improving computer networks, time sharing, computer security, interactive processing methods, mass memories, display technology, microprogramming, and communications technology.

38.   The division consists of a chief, _____ officers, and _____ secretaries.   Its budget for FY-72 was _____ At the time of our survey, the division had _____ contracts and was doing a considerable amount of in-house research using ORD's IBM 360/50, a PER-3 graphics processor, and the hybrid analog-to-digital computer equipment _____ ORD categorizes 28 of the division's projects completed during the period 1964-71 as having been technically successful.   Eleven of them were put to operational use.

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- 24 -

SECRET

SECRET

## Medical and Behavioral Sciences Division

39. The Medical and Behavioral Sciences Division, as presently constituted, came into being in June 1965 when the former Life Sciences Division was split, forming two new divisions. Its concern is with the exploration and application of advanced technology to enable the development of systems or methods that will enhance the Agency's capability to measure, assess, predict, influence, and control human behavior. Its work includes an important program having to do with narcotics and dangerous drugs.

40. This is a small division consisting of the chief, [ ] 25X1 officers, and a secretary. The officers do a small amount of in-house research, but the major portion of its R&D work is done under 25X1 some [ ] contracts at an annual cost of [ ] 25X1 25X1 [ ] ORD records reveal that the division completed 15 major projects during the period 1965-71 that were considered technically successful. Six of them were put to operational use.

## Biological Sciences Division

41. The Biological Sciences Division was the other division formed in 1965 by the splitting of the former Life Sciences Division. The division was given the mission of studying biological systems

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and their application to the intelligence process from the standpoints

of covert action, collection, and processing.   While human factors

engineering would seem to be more appropriately placed in the

Medical and Behavioral Sciences Division,  by agreement between

the two division chiefs it has been retained in the Biological Sciences

Division. 25X1

25X1

42.   The division consists of a chief, [ ] technical officers,

25X1  and [ ] secretaries.   The FY-72 budget for the division was [ ] 25X1

25X1  [ ] of which about [ ] 25X1

25X1
25X1  [ ] It had [ ] contracts at the time of our survey.   ORD

records reveal that 14 technically successful projects were completed

during the period 1965-71.   Only two of the 14 were put to operational

use.

Special Projects Group

25X1

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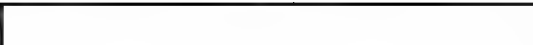
X1

25X1

44. To see almost six years of work go down the drain was a traumatic experience for the members of the Special Projects Group. Their situation was made worse by the fact that the group continued in being after July 1971 [          ] but without any specific guidance or direction as to its future mission or area of responsibility. The group chief has found other assignments for two of the technical officers and one of the secretaries.
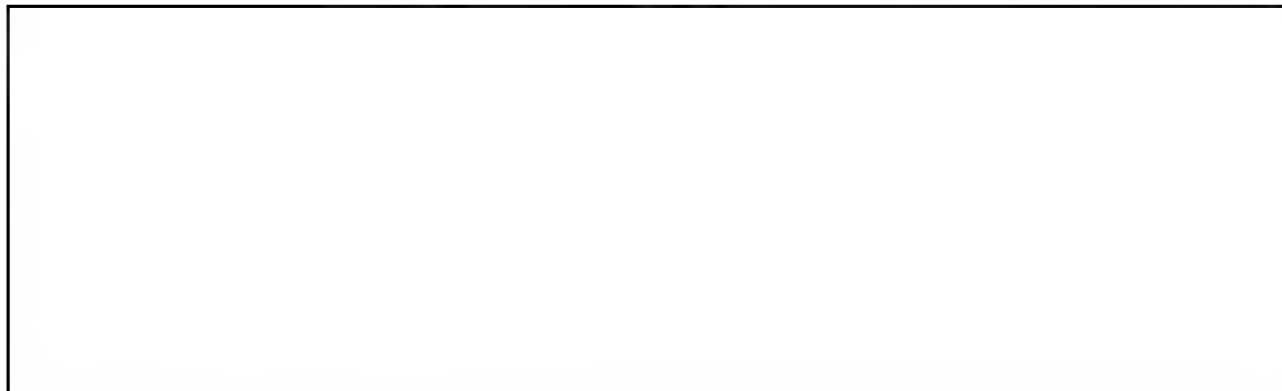
25)

25)

45. This program, no matter how imaginative it may be, does not justify the continued existence of the Special Projects Group as a separate entity. Each of the elements of its program directly

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## Recommendation No. 4

That the Director of ORD abolish the Special Projects
Group and reassign its members to other elements of ORD.

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## THE ROLE OF ORD

1. The Directorate for Science and Technology had its beginnings in February 1962 when the position of Deputy Director (Research) was established. ORD came into being, on paper at least, in July 1962, but it did not begin taking shape as an office until November 1962 when the Assistant Deputy Director for Research was assigned the additional duty of serving as Acting Assistant Director, Office of Research and Development.

2. ORD's founders envisioned that all Agency R&D activities would be centralized in ORD, but this concept promptly ran afoul of opposing views held elsewhere in the Agency. The opposition is understandable, because ORD was a Johnny-come-lately into an area in which some Agency offices had worked for nearly two decades and in which there were well entrenched operational and proprietary interests. Those opposed to centralization argued that:

--- It would be insecure and inefficient.

--- It ran contrary to the already established concept that the diversity of the Agency's activities required that it operate on a decentralized basis.

- 29 -

SECRET

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25X

missions. ORD, however, is charged with conducting R&D of common

technical concern to all Agency components, and R&D is its only

mission.

4. The first draft of a statement of ORD's mission and functions

for publication in Agency regulations was prepared in 1962. It took

over eight years to reach agreement on the text of the statement,

reportedly a record and one of which we have no cause to be proud.

The text of the published statement is reproduced on the facing page.

A review of the records pertaining to efforts to coordinate the statement

reveals that the delay in publication was attributable primarily to

strong differences of opinion among the various Agency technical

offices as to precisely what ORD's role should be and as to the extent

and nature of coordination between ORD and the other technical offices.

- 31 -

SECRET

The final text was the best compromise attainable among those con-
tending views. It is an ambiguously worded document that tends to
institutionalize and perpetuate the conflicts and differences of opinion
on R&D responsibilities, rather than to resolve them.

5. The functions that ORD actually performs bear little
resemblance to those enumerated in the regulation. Most of its
activities relate to the function assigned in ⬜ 25X1

25X1

25X1 ⬜ The function of
serving as essentially a bridge between Agency technical components
and the rest of the scientific world, to the extent it is performed at
all, is not carried out through any orderly mechanism. There is
no provision for ORD's undertaking R&D work on behalf of other
Government agencies; yet, it has done so to the tune of ⬜ 25X1

25X1 ⬜ per year.

6. It might also be noted that the definition of ORD's mission
25X1 ⬜ is in conflict with the provisions of a memorandum from
the Executive Director-Comptroller to all of the directorates dated
8 March 1972 on the subject of R&D, which defines three types of R&D

- 32 -

efforts to be conducted by the Agency: (a) Exploratory R&D to probe
new areas that may potentially contribute to CIA's mission, (b) Direct
support R&D to support ongoing operations through the development
of new equipment and techniques closely related to ongoing operational
needs, and (c) Multiple application R&D involving the support of more
than one current need or operation. That memorandum assigns
primary responsibility for direct support R&D to the respective
operating directorates, assigns responsibility for exploratory R&D
to the DD/S&T, and provides that multiple application R&D efforts
may be routed through the newly created R&D Board for determination
of the assignment of a particular R&D effort to an appropriate technical
office. The memorandum also establishes a Technical Coordinating
Committee to foster technical exchange, coordinate programs, surface
gaps and redundancies and other special problems, and makes important
provisions for reporting on R&D activities.

7. We were tempted to recommend that ORD revise the statement
of its mission and functions to conform with its actual role, but we
were dissuaded by the realization that this would be a hopeless
exercise. The present statement is a compromise document, and

- 33 -

SECRET

it is unlikely that ORD would be able to negotiate a new statement
that would be any more realistic. Furthermore, the mechanisms
established by the Executive Director-Comptroller's memorandum
of 8 March have not yet had time to prove their worth. Experience
may demonstrate that modifications are necessary, although the
general concept seems eminently sensible and workable.

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## THE WORK PROGRAM

1. In simplest terms, ORD is charged with conducting R&D of common technical concern to all Agency components, and R&D is its only assigned mission. It is charged with "the investigation of scientific and technological developments relevant to the accomplishment of the Agency's mission." The statement of functions ⬚ provides that ORD will develop and implement, in coordination with other R&D offices of the Agency, basic and applied research; will provide conceptual analysis as to technical feasibility of advanced systems; will conduct research and feasibility studies on techniques, components, and systems of common technical concern; and will administer specific external contracts.

2. These broadly stated responsibilities are broken down by division into a series of specific objectives. The following list of these objectives is not all-inclusive, nor are all of them being worked on at any one time, but the list does give a feel for the very wide range of scientific and technical areas with which ORD is concerned.
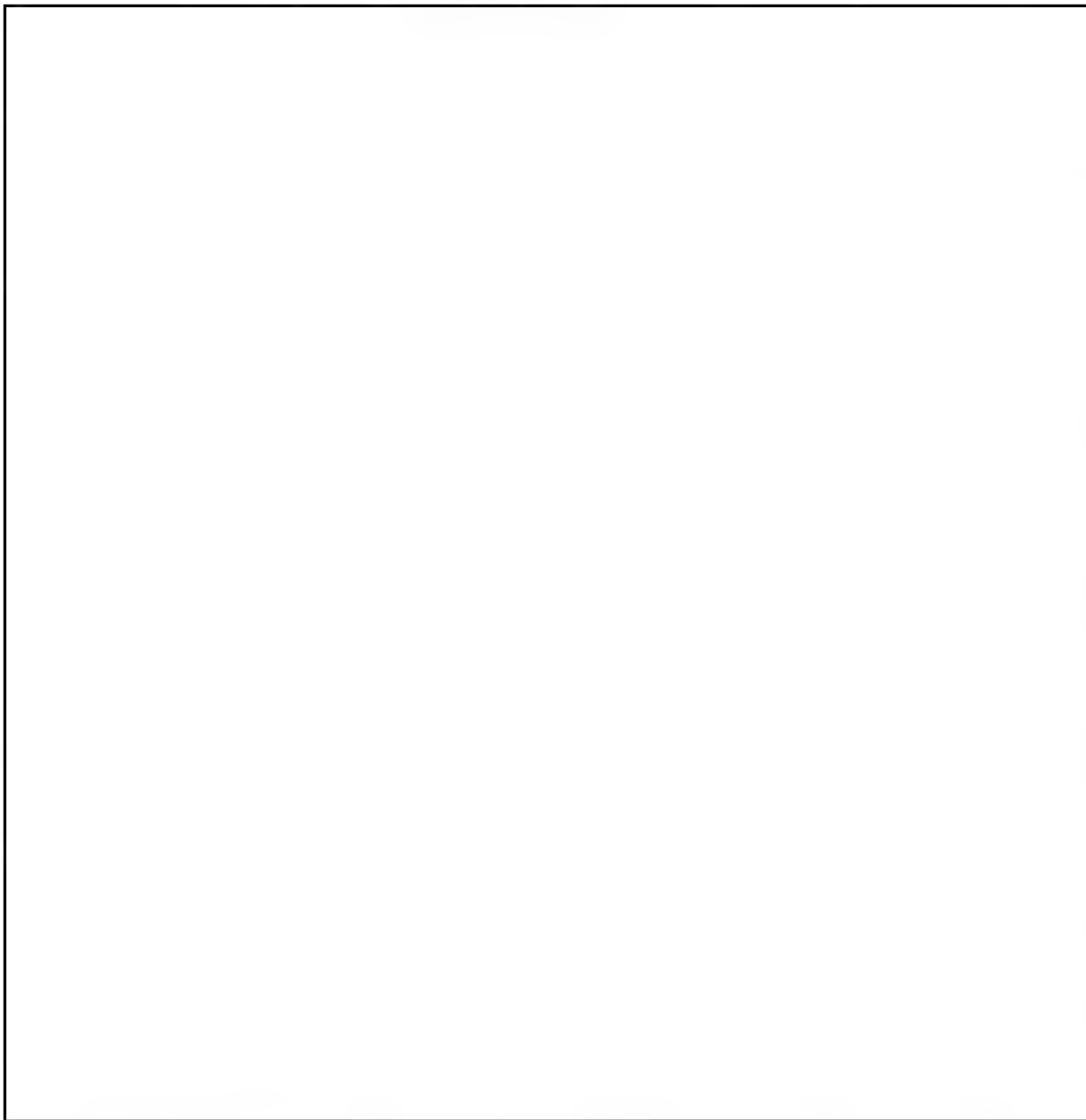
25X1

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S E C R E T

3.  ORD does some internal research, but not very much.  A
few of its objectives can be met by monitoring the work of others
at no cost to the Agency; however, most of its work program is in
the form of external contracts with industrial concerns or educational

S E C R E T

institutions. Some of the contracts, especially those calling for
the building of hardware, are relatively short-term efforts; some
of them, especially those involving exploratory research, run for
years. In cost, they range from

25X1
25X1

4. The results of ORD's work program are difficult to evaluate.
A major problem in this regard arises from differing definitions of
what constitutes success in an R&D effort. ORD takes the long-
range view that continuous exploration into the state of the art is
necessary to acquire the knowledge needed by the Agency to adapt
and to improve its processes. ORD considers an R&D project to
have been successful if it realized its intended technological objective.
The customer components take a shorter range view. They consider
an R&D project to be successful if it yields a product that is needed
at the time it is developed, that can be engineered and produced at
an acceptable cost, that is suitable for use in the expected opera-
tional and security environment, and that will do the job intended
for it.

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5. Thus, many of ORD's completed R&D projects are evaluated as successes by ORD's definition but as failures by ORD's customers' definition. Some of them achieved the technological objectives that were sought, but there was no requirement for the product at the time it became available. Some of them found application in operations, but the benefits derived from them were minimal. Some had the potential for yielding significant benefits but at a cost that would have been prohibitive. Even a project that was unsuccessful by ORD's definition may have made a major contribution in the form of a fallout of useful knowledge or a by-product with application elsewhere. An unsuccessful project that disproves a popular theory may form the basis for avoiding a larger undertaking destined to end in costly failure.

25X1

25X1

6. ORD recently made a statistical tabulation of its technically successful projects that were completed during the eight-year period from 1964 through 1971, with these results:

--- The total of R&D funds expended on R&D projects during the period (exclusive of management-support costs and funds transferred from other government agencies) was

25X1

- 42 -

SECRET

SECRET

--- Approximately 42 percent of the funds were spent on
projects that were technically successful; 58 percent
on projects that were not successful.

--- There were 150 technically successful projects. The
unsuccessful projects were not tabulated.

--- Of the total of 150 successful projects, 55 were imple-
mented by Agency operating components; 95 were not.

--- Of the 55 projects that were implemented, 35 were
developed in response to formal requirements levied
on ORD; 20 were developed without a formal require-
ment, although some were started with the acquiescence
of an operating component.

--- Approximately 20 percent of the total funds spent was
devoted to projects that were successful and were imple-
mented; about 80 percent was spent on projects that were
either unsuccessful or, if successful, were not implemented.

7. We doubt that these statistics provide a basis for any broad

conclusions about the worth of ORD's work program, nor does ORD

so represent them. Perhaps the most significant of the findings was

that only about 20 percent of the R&D money was spent on projects

that resulted in usable end products, but even this finding has little

meaning in the absence of a fixed goal against which to measure it.

8. It can be (and has been) argued that success-to-failure

ratio is not a fair measure of the value of R&D efforts, and this is

a thesis with which we tend to agree. When one is working at the

far fringes of the state of the art, as ORD often is, there are a

- 43 -

SECRET

great many unknowns. Sometimes the only way to discover whether

something can or cannot be done successfully is to try it. ORD

cannot be faulted for its failures, or at least not for too many of

them. Where it can be faulted, in our opinion, is in the very large

number of projects that were identified as being "successful but

not implemented" (63.3 percent of the total of technically successful

projects). In our interviews in the components using ORD's ser-

vices, these were the reasons most frequently cited for failing to

use an ORD product:

> --- There was no requirement for the product when the
> project was started, and there was no application for
> it when it was ready for delivery.

> --- There was a requirement for the product at the time
> the project was launched, but the requirement had
> vanished before the project was completed.

> --- The ORD project was designed to meet a requirement,
> but the product it delivered was not configured to fit
> the specific need or could not be used in the operational
> or security environment of the operating site.

> --- There was a requirement for the product, but by the
> time it was completed a better or less costly product
> had become available from another source.

> --- The product that was delivered would not effectively
> do the job intended for it.

- 44 -

9. Over the years, various mechanisms have been created for achieving a better match between operational needs and R&D programs. Some of the mechanisms worked poorly or not at all; none of them worked well. Committees or panels of distinguished scientists have been formed to examine future R&D needs. Their reports have been of value, but it is difficult to judge what real impact they have had. We are inclined to doubt that it is possible to build an effective bridge between operations and R&D when they are widely separated, both physically and organizationally. We noted in a recent survey of TSD that, in our opinion, one of the major impediments to more effective performance in the audio field was that development and engineering was too far removed from operations, yet the two are in the same division. ORD is a directorate away from most of the operations it supports.

10. Many of the officers that we interviewed in ORD's customer components highly value ORD's advisory services on technological matters and the assistance ORD gives them on their own R&D programs. They consider this advice and assistance to be of more benefit to them than are the results of the formal R&D projects undertaken by ORD. Admitting that our sources have a

- 45 -

SECRET

bias in this regard, we still believe there is merit in their point
of view. The role assigned to ORD includes evaluation of world-
wide R&D programs as well as scientific discoveries, monitoring
of research conducted by private enterprise and the academic
community and making its benefits available to the Agency, and
conducting liaison with other Government agencies to identify
findings that have intelligence application. ORD does some of this,
sometimes on specific request, but more often on a sort of as-we-
see-fit or as-time-permits basis. In our view, maintaining a
capability to advise and assist others should be a deliberately
scheduled segment of ORD's work program. It is not. We found
no evidence of any established mechanism for performing these
functions or any systematic method of disseminating information
to other components of the Agency to keep them apprised of current
R&D activities elsewhere in the scientific and technical community.

Recommendation No. 5

That the Director of ORD establish a formal mechanism
within his office for the conduct of those functions specified

25X1

25X1

- 46 -

SECRET

SECRET

We

note that the statement of mission and functions of ORD does not

provide for the conduct of R&D for other agencies of the Government,

although it has been done for several years. We encountered

differing views within ORD as to the appropriateness of ORD's

engaging in R&D activities on behalf of other agencies. There are

many who believe that a net benefit accrues to ORD from access

to the much larger pool of R&D money available to the Department

of Defense and from the technical spin-offs that result from this

research. Also, many of the projects have direct application to

Agency operations. There are others in ORD, however, who believe

that the time and talent expended by ORD on behalf of other agencies

could more profitably be used on higher priority Agency-funded

projects. There are some who look on these external funds as a

means of reviving a project proposal that was disapproved for fund-

ing with Agency money.

12. We are in no position to choose between the contrary

points of view, although we lean in favor of the position that external

- 47 -

SECRET

funding of R&D projects results in a net gain to the Agency. It is

something that should be kept under close scrutiny, however, to

avoid allowing an imbalance to develop between the work ORD does

for the Agency and the work it does for others. Certainly, external

funding should not be employed as a way of circumventing the pro-

ject approval process. We understand that the DD/S&T now requires

his specific approval of each externally funded R&D project.

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Procurement Management Staff for review, recording, and acknow-
ledgement. They should then be forwarded to the project officer
for further study and review and for refinement of specifications
and work statements and the like. There are a number of reasons
why it would be desirable for the contracting officer to receive a
contract proposal at the earliest possible date:

--- To allow for an early check on the contractor's pre-
vious performance under other contracts with the
Agency or with the Department of Defense.

--- To ascertain if other divisions of ORD or other
components of the Agency are currently negotiating
other contracts with the same contractor and, if
so, the type of fees that are being negotiated.

--- To examine the availability of alternate sources
before the proposal becomes so specifically tailored
that only one source can be considered.

--- To call attention to a possible need for refinement
of specifications and work statements.

--- To identify as early as possible any legal, patent,
or other similar problems that may need clarification.

--- To prevent informal negotiations from proceeding to
the point where moral obligations become binding.

--- To provide the ORD Contractor Selection Board
with the information needed for an objective selection
of the best contractor.

**Next 3 Page(s) In Document Exempt**

SECRET

13. The Procurement Management Staff works closely with the project officers to ensure that contract specifications and work statements are clearly stated in the contract and to try to separate the work into phases or parts that are susceptible to performance measurement; such as, feasibility study, breadboard or prototype hardware, or definable development work. This is sometimes very difficult to do, however, because clear specifications and work statements are hard to come by in the case of exploratory research contracts. We noted that proposals from some of the prospective contractors are in the nature of academic dissertations containing no action verbs clearly defining what the contractor is required to do.

14. The Procurement Management Staff is always on the lookout for contractual arrangements that might involve a conflict of interest--real, apparent, or possible. Many ORD employees have worked for contractors in the past, and many former Agency employees are now working for contractors. If the Staff has any reason to suspect that a conflict of interest may exist, it seeks advice from the Director of ORD, the General Counsel, or both. We noted instances of inquiries having been made of contractors

- 57 -

SECRET

SECRET

to ascertain if a former Agency employee would be engaged in work on an ORD contract. Occasionally, clauses are inserted in contracts specifying that a former Agency employee is not to work on the contract nor to have any interest in it.

15. The inquiries we made of those we interviewed (admittedly in very low key) did not surface any cases of possible conflict of interest not already known to ORD management. The cases that were known to exist had all been surfaced and checked out with the Director of ORD and with a representative of the General Counsel. In most instances, however, these checks were informal, and the records available for review did not always disclose the reason why a contract had been initiated when an "apparent" conflict of interest existed or why an alternative contractor was not chosen.

16. The DD/S&T and the A/DD/S&T are very much aware of the possible embarrassment to the Agency if good judgment is not used in the handling of such cases, and they take an extremely hard-nosed approach to the matter of possible conflict of interest. We did not find a comparable degree of awareness and concern at the ORD level.

- 58 -

SECRET

SECRET

## COORDINATION AND COOPERATION

1.  The responsibility of the Director of ORD "does not
include research and development activities which are specifically
delegated to other Agency technical offices."                    The          25X1
statement assumes that a clear and precise distinction can be
made between those R&D activities that are assigned to ORD and
those that are specifically delegated to other Agency technical
offices.  In fact, however, if it is possible to make such a clear
and precise distinction, and this we doubt, it is one that is im-
possible to maintain over time.  The Agency's R&D pie has been
rather oddly and quite messily sliced.  There is inevitable over-
lapping, redundancy, and gaps that can be overcome, if at all,
only by continuing coordination and cooperation among the several
technical offices.

2.  There is much room for improvement in this area between
ORD and the other technical offices and within ORD itself.  The
problem of internal coordination is for ORD to solve.  There are
things it might do to improve its external relations, but cooperation
is a two-way street, and ORD meets at least as many obstacles to

- 59 -

SECRET

SECRET

betterment as it creates. One of the major problems that ORD

faces in this regard is that, because its own R&D activities cannot

be clearly differentiated from those of the other technical offices,

many of its programs run in competition with programs elsewhere

in the Agency, and competitors do not often coordinate graciously.

3. Let us first consider the matter of internal coordination.

ORD is fragmented into eight tiny divisions (actually seven divisions

and one group) along lines of scientific disciplines. In practice,

however, much of the work of the office does not follow the pattern

of its organizational structure. Two factors contribute to the

mismatch between organization and work. One of them is that often

the work does not fall cleanly within a single scientific area. Fly-

ing platforms, for example, can be configured in a variety of ways

to accommodate an assortment of collection devices and techniques.

It is not surprising, then, that we found a number of ORD divisions

involved in some fashion with the exploitation of flying platforms.

The other factor has to do with the differing ways in which ORD

projects originate. Those that are conceived in response to external

requirements usually are assigned on the basis of the primary

technology involved in the development of the product. Many of

- 60 -

SECRET

SECRET

them, however, begin as the brainchild of one of ORD's technical officers, and the practice has been to allow the man who came up with the idea to develop it as a project. It is not uncommon to find a project in one division involving a primary technology that is the specialty of another.

4. It is widely believed among ORD's technical officers that the man most likely to get ahead is the one who has the most projects involving the most money. The belief may have no foundation in fact, but it exists nonetheless. Since surrendering an idea would mean losing a project, there is a tendency in all of ORD's divisions toward possessiveness, secretiveness, and competitiveness. Some of this can be attributed to a proper concern for the need for compartmentation, but much of it is nothing more than a reluctance to share ideas or technologies. Some of it, we are sure, is a consequence of professional arrogance--an unwillingness to concede that someone else might have a better idea. Another element is that of "getting credit," a near obsession with many of ORD's officers. These are typical of some of the examples that were cited to us:
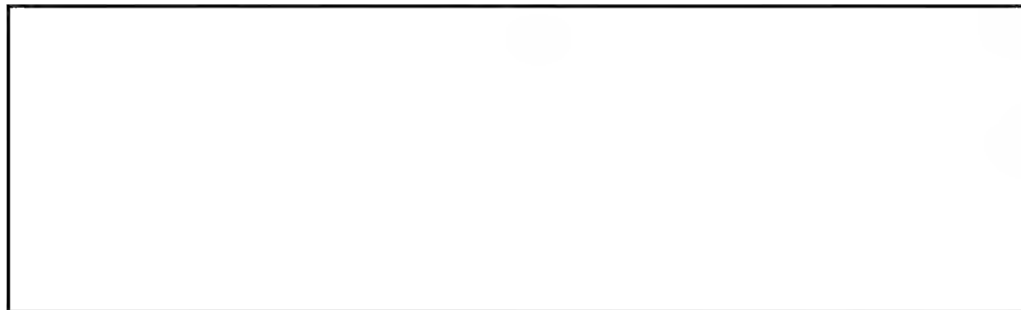
     --- The technical officers in the Radio Physics Division
         who are developing the somewhat similar [          ]
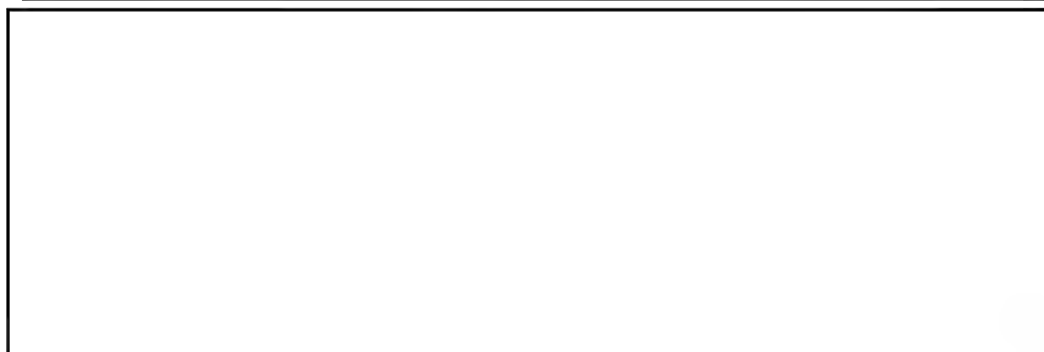
25X1

- 61 -

SECRET

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5.   The extent of consultation and exchange of technical informa-

tion within ORD varies by division and by individual.  Most of it

is informal and oral.  There is, in our opinion, less of it than

there should be.  Some of the work is highly sensitive and must

be tightly compartmented, but much of it is not.  There is no

excuse for one division submitting a contract proposal for work

that had already been done by another division, and we know of at

least one instance in which this has happened.  What is lacking is

a mechanism for administering an orderly and controlled exchange

- 62 -

SECRET

SECRET

of technical information in ORD. There is at present no central

location in ORD where an officer can find out what R&D work has

been completed or is currently being worked on by other divisions

or by other technical officers. We believe that it would be feasible

to develop something along this line and that it would be preferable

to the present situation, which is heavily dependent on individual

initiative in seeking out information and on individual willingness

to release it.

### Recommendation No. 9

That the Director of ORD consider establishing a
central repository of information concerning R&D work
that has been completed, is in progress, or is contemplated.

6. Let us look next in some detail into the nature of ORD's

working relationships with other Agency offices to which ORD

renders R&D support. These relationships vary so widely in nature

that it is impossible to generalize about those of the office as a

whole. To tally them fully would almost require treating them on

an officer-by-officer basis, because the extent of coordination

and the degree of cooperation is heavily influenced by personalities

within ORD and among those it serves. It may be illustrative,

however, to summarize our observations and the results of customer

interviews with regard to each of ORD's divisions.

- 63 -

SECRET

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Radio Physics Division

Applied Physics Division

9. TSD and the Office of Security are the primary users of products developed by the Applied Physics Division. TSD is less than happy with the Applied Physics Division. Although the

- 65 -

SECRET

reasons were expressed in such general terms as non-coordination, lack of communication, or lack of cooperation; we believe that personality conflicts and historical animosities are the primary causes of friction. Neither side is without blame. The division chief told us that he tries to obtain a memorandum of interest or coordination from the interested component for any work he plans to undertake; however, some work is performed without coordination if the division chief feels that the operating component is wrong. TSD cited this as being a practice to which it objects.

10. The Technical Security Division of the Office of Security had nothing but praise for the Applied Physics Division. Technical Division stated that there is no competition or duplication of effort between the two organizations. Technical Division holds fruitful discussions with the Applied Physics Division on requirements to ensure that they are fully understood, that the operational climate is spelled out, and that targets are fixed. The two components work together in defining concepts, in selecting contractors, and in preparing work statements. They jointly visit the contractor, attend briefings, and review contractor progress reports. There is no formal procedure governing this close relationship. It has

- 66 -

SECRET

simply evolved over the years. It appears to be mutually
beneficial.

## Optics Division

11. This division stresses that every R&D requirement
should be related to an end product and be able to stand the test
of relevance to the intelligence process. Division officers
state that they constantly strive to interface with the customers
during every stage of the R&D process so that the end product
will conform to the original requirement, be compatible with the
operational environment, and satisfy the customer's need. The
results of this approach are noteworthy. Customer components
were high in their praise, not only for the success and profes-
sionalism of Optics Division's work, but also for the cooperation
and close coordination that exists.

## Analysis Division

12. Historically, relations between the Analysis Division
and many of its customers have not been good. The frictions
appear to have arisen, in part, from disagreements with the chief
of the Analysis Division about the nature of requirements for R&D
work in computer technology and, in part, from lack of understanding

- 67 -

SECRET

on the part of the customers of ORD's role and of the contribu-

tion it could make.  We found, however, that working relationships

have improved noticeably within the last year or two.  OCS,

which in the past complained that ORD initiated projects without

consultation and that the end products often were not applicable

to needs or would not work on existing machines, reported that

relations with ORD have been vastly improved recently.  OCS is

now working closely with the three branches of Analysis Division

on projects of direct interest to OCS.  Worthwhile results are

being obtained.  OSI and CRS feel that they are being provided

useful service by the Analysis Division and have noted a much

greater interest in their needs on the part of Analysis Division

within recent months.  OSR [                    ] report beneficial inter-    25X1

faces with Analysis Division. NPIC is the only office we found

that still has less than satisfactory relations with Analysis Division.

NPIC is not at all sure that Analysis Division's R&D efforts on

image manipulation [                    ] will produce results of    25X1

benefit to NPIC.  There also is evidence of some rather sharp

jurisdictional disputes between NPIC and ORD, which may be the

main cause of the friction.

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13. The general improvement in customer relations seems
to be the result of initiatives taken at the branch level and by
individual officers in Analysis Division to focus more sharply on
the specific needs of each user and to spend more time and effort
in consultation with the using offices and on in-house research.
This contrasts with the former approach of developing devices
or systems and then trying to "sell" them to the customer. It
was clear from our interviews in the using offices that the cus-
tomers prefer to deal directly with branch chiefs and individual
officers in the division, rather than with the division chief.
Many officers in the using components consider the division chief
to be unfamiliar with the requirements and operations of the
Agency and to be needlessly difficult to deal with.

Medical and Behavioral Sciences Division

14. This division works reasonably harmoniously with OSI
and the Office of Security, but its relations with some elements
of OMS and TSD are very much in disarray. OMS has detailed an

25

- 69 -

Next 2 Page(s) In Document Exempt

SECRET

18. In the final analysis, most of the frictions and
disagreements arise from differing interpretations of ORD's
role in the Agency's R&D arena. It is a problem that was
addressed directly by the Executive Director-Comptroller in
his memorandum to the directorates of last March in which he
defined and assigned responsibility for exploratory, direct
support, and multiple application R&D. Because the directive
was of such recent date at the time we were pursuing our
survey, we did not have an opportunity to observe and to report
on its impact.

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SECRET

## MANAGEMENT

1.  The recently retired Director of ORD was the first full-time director of the office.  He built it into what is is today; and its organization, methods of operating, and style of management are largely of his making.  The office now has a new director with a different personality and background, and many of the situations and practices that we observed during our survey are likely to be changed.  Change, in our view, is desirable, because the style of management of the former Director was not well geared to getting the most from the resources available to him.

2.  The dominant feature of ORD management to date has been permissiveness.  The Director has never really taken charge of the office.  Many of the very fine technical officers in ORD have turned in work that has been of immeasurable benefit to the Agency, but many of them have been allowed to drift into fields of activity that are of personal interest to them but which offer little or no prospect of benefiting the Agency.  There is considerable variance between the R&D work that is programmed and that

- 74 -

SECRET

SECRET

which is actually undertaken. The distribution of work among the divisions is not consistent with the organizational structure and delegation of functions. Since positive direction and guidance by the Director has been lacking, the divisions have been left to their own devices for solutions to problems that should be of immediate concern to the Director. We did not consider the management standards and procedural mechanisms we found in ORD to be adequate to ensure proper validation of R&D requirements, allocation of priorities, review and monitoring of work in progress, or evaluation of the work force and of the R&D end-product.

3. In our discussions with the Director of ORD, he defended his management concepts in terms of the inherent difficulties of managing and evaluating R&D activities; the historical evolution of R&D activities in the Agency with the attendant fragmentation of functions, indistinct authorities, rivalries, and imbalances; the necessity of avoiding bureaucratic rigidities in order to maintain an environment that was conducive to creativity and innovation; and the failure of top management to identify gaps in the intelligence

SECRET

SECRET

process requiring R&D effort. While acknowledging that there is some merit in each of these points, we feel that the Director of ORD has had the authority and the latitude required to make needed improvements, but he has failed to do so. Although he was highly regarded for his technical ability and for his imaginativeness, we received criticisms on the way ORD was run from employees at all levels within ORD and from officers of other Agency technical components.

4. Oddly enough, or perhaps not so oddly, many of the officers in ORD who were most critical of the loose management of the office were quick to add that they personally preferred to work under this style of management, because it gave them a great deal of freedom in their work. There probably is a quite fine balance between maintaining control and encouraging innovation, but we came away from this survey with the distinct impression that maintaining control has been lost sight of in ORD.

Policy Guidance

5. The most frequently heard refrain during our interviews at all levels in ORD was over a lack of policy guidance from the upper echelons of the Agency. There is a widely held belief that

- 76 -

SECRET

it should be possible for some individual or group to identify

long-range priority national intelligence R&D objectives, which

ORD could then translate into a work program specifically

focused on major gaps. The five-year program forecasts were

criticized as being too general in nature to identify these gaps

and that, as the forecasts filter down, not enough interpretation

or guidance is added to them to enable the technical officers to

design R&D projects directly responsive to major needs.

6. We think that the difficulty lies primarily within ORD

in failing to identify and to concentrate its efforts on programs

of major significance. One officer that we interviewed over-

stated the problem, but he identified it correctly: "ORD kills

itself with thousands of little projects." Most officers would be

happy to see definitions of the R&D scientific disciplines for

which they are responsible, a clarification of criteria for the

validation of requirements, standards for evaluating on-going

projects, and provisions for an open and mutual exchange of

technical information between ORD and other technical components.

They believe that, if these things were done, their concerns

over lack of policy guidance would diminish.

- 77 -

SECRET

## Organizational Factors

7. The organizational structure that we examined in ORD
is not, in our view, well designed for efficient management.
The office is fragmented into a series of small divisions. Six of
the seven divisions have [          ] professional officers    25X1
assigned; one, the Medical and Behavioral Sciences Division,

25X1    has [          ] The divisions supposedly are organized on the
basis of scientific disciplines, but they do not actually operate
that way. This is so, in part, because many of the projects
that are undertaken require the application of several scientific
disciplines for their completion and, in part, because the divi-
sions are allowed to initiate projects that are incompatible
with their assigned areas of specialization. Furthermore, it is
not uncommon to find two or more divisions working on essentially
similar problems. Because there are so many divisions and
because they intrude in others' areas of specialization, there
are problems of coordination and communication that would be
of a much lesser order if the organizational breakdown were less
fragmented.

- 78 -

SECRET

SECRET

8. Consolidation would also make it easier to apportion the workload evenly, or at least more evenly than it now is. The average workload is now about three or four projects per technical officer, but it is highly variable. We found one officer handling 15 projects and some with only one or two. In addition to variations among individuals, the workload is not apportioned evenly among the divisions. The Medical and Behavioral Sciences Division is a case in point. It does not have the funds that are really needed to conduct in-depth research in all of the areas selected for exploration nor does it have the staff that would be required to properly oversee work in progress. Its resources are stretched too thinly. A partial solution to this problem might be achieved through reorganization and redistribution of the workload within ORD, but we believe that what is needed in this case is a realistic appraisal of the worth of on-going and planned projects in terms of the staff time necessary for their proper management. It may be that the best solution would be to assign more people to the division, but we have the impression that some of the division's lower priority work could be eliminated.

- 79 -

SECRET

SECRET

### Recommendation No. 10

That the Director of ORD review the work pro-
gram of the Medical and Behavioral Sciences Division
in terms of staff and resources required to manage
these activities properly and terminate those activities
for which adequate staff or other resources are not
available or cannot be provided.

9. We also believe that there would be advantage in con-

solidating separate activities that are closely related, which

probably would call for organizational adjustments. This

observation is based on our repeated encounters with technical

officers in the various divisions who were working on the deve-

lopment and testing of flying platforms. Even Optics Division

has a program in this field. While it is true that each of the

divisions that is developing sensors has a valid interest in the

use of flying platforms as a means of emplacement, it appeared

to us that each of them was addressing itself to an essentially

similar problem: how to get the device to the target. We

believe that it would be worthwhile to explore the feasibility of

centralizing ORD's activities relating to emplacement platforms.

### Recommendation No. 11

That the Director of ORD review all on-going
or planned projects concerned with emplacement
platforms to determine the feasibility of consolidating
these efforts within one organizational element of ORD.

- 80 -

SECRET

10. The organizational structure that we examined in the course of our survey was obviously one that suited the style and disposition of the then Director. In our view, a number of other ways could be found for apportioning and supervising the work that would be more effective than the present arrangement. We are sure that it is a topic to which the new Director will give early attention.

## Reporting

11. ORD's division chiefs keep abreast of the status of their projects by reading their technical officers' trip reports and contractor progress reports, by occasionally accompanying the technical officers on visits to contractors, and by discussions in daily contacts with the technical officers. Most of the division chiefs are thus able to keep themselves adequately informed on those projects for which they are responsible. This informal system breaks down sometimes, however. A recent example

25X1

was a Radio-Physics Division contract

25X1

The contract developed a serious overrun that did not come to the attention of the division chief until after the contractor was already deeply in trouble. That contract was the subject of a special report to the Executive Director-Comptroller.

- 81 -

SECRET

12.  We found no evidence of a systematic mechanism for keeping the Director of ORD similarly informed on the current status of work in progress. He held two staff meetings each week and kept an open door for division chiefs or technical officers to brief him on work under way; however, the initiative for passing information to him rested with the division chiefs and technical officers. One division chief reported to us that there were only three occasions on which he discussed project work with the Director of ORD: (a) when a project was in trouble, (b) when a project was completed and the results were to be presented, or (c) when the Director of ORD specifically requested information. We believe it imperative that a means be devised for keeping the Director of ORD informed of the current status of all work in progress. He needs less detail than do the division chiefs, but he certainly needs more than he has been receiving.

13.  The Procurement Handbook [          ] specifies that        25X1
a component having technical cognizance of research projects is responsible for, among other things, "periodically documenting the progress and prospects of each project under its jurisdiction."

- 82 -

SECRET

ORD management does not have a clearly enunciated policy or even a consistent attitude toward this requirement. As a consequence, we found considerable variation in interpretation of and compliance with the responsibility among the technical officers. Some divisions require their officers to submit these progress reports, and we found them in the project folders; however, some divisions do not require the reports, and they are not made. The divisions who do not require progress reports by the technical officers justify their action on the grounds that the division chief is in such close daily contact with his officers that oral reporting is sufficient.

14. Progress reports are received from the contractors, but the ORD technical officer is not required to make any sort of written analysis, evaluation, or comment on them. The technical officers do submit the required contract inspection reports, but their preparation calls for little more than placing check marks in a number of boxes.

15. We believe there is a need for periodic written progress reports by the technical officers in which they are required

- 83 -

SECRET

to state their own analyses of the contractor's work to include

an evaluation of progress and an assessment of future prospects.

It would be a beneficial exercise for the technical officer, and it

would yield a basis for summary reports to the Director of ORD.

### Recommendation No. 12

That the Director of ORD review present report-
ing standards and practices within ORD and revise
them as he feels necessary to keep himself informed
on the status of work in progress or planned for the
future.

### Looking Ahead

16. Many of ORD's management practices are open to

criticism, but these are problems that can be attacked and solved

internally; however, the Agency's policies and standards for

conducting R&D have a profound impact on the way ORD conducts

its business, and ORD has limited influence over these externally

imposed policies and standards. The Agency has chosen to

disperse the R&D functions among a number of technical components,

but it has not in the past established a framework of common

management disciplines and practices that would apply to all com-

ponents engaged in R&D work to ensure that they work together

toward common goals. There are wide differences in opinion

- 84 -

SECRET

and practice among Agency technical offices as to the pre-

requisites for undertaking an R&D effort, the manner in which

it should be conducted, and the method of evaluating the results.

The Executive Director-Comptroller's memorandum of 8 March

1972 establishing an R&D Board and a Technical Coordinating

Committee is a major step toward clarifying R&D goals and

resolving disputes that arise in the R&D arena. We believe that

a legitimate follow-on endeavor would embrace the establish-

ment of uniform standards and mechanisms for the management

of R&D activities and for the evaluation of the results of the

Agency's R&D efforts. The ultimate goal should be:

- --- To ensure that R&D proposals are consistent
with the Agency's primary missions and objectives.

- --- To ensure that there is a realistic match between
technical and operational feasibility.

- --- To foster purposeful consultations and disciplined
interaction and coordination of effort among the
Agency's technical offices engaged in R&D.

- --- To foster a freer exchange of technical information.

- --- To minimize unprofitable rivalry, competition,
and duplication of effort.

- 85 -

SECRET

--- To strengthen the requirements and standards
for pre-contract work and the monitoring of
contracts in progress.

--- To synchronize and improve the Agency's ADP
contract management systems.

--- To establish a system for evaluating R&D efforts
in terms of contribution to the intelligence process.

- 86 -

SECRET